

Work Order ID 75631

75631

Page 1

October-27-11 11:37:01 AM

Item ID: D6005-128 Accept ***N9000040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Crosstube Material
 Start Date: 27/10/2011 Start Qty: 40.00 ***40*** Cust Item ID:
 Required Date: 28/02/2013 Req'd Qty: 40.00 ***40*** Customer:
 Reference:

Approvals: Process Plan: MLJ Date: 11/10/27 Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D6005	Rev A

100 PURCHASING 0.00

100

Purchasing

Purchasing

Memo

0.00

Issue P/O: 15345

- a) Order as per Dwg D6005
- b) Material: 2.750 x 0.375 wall 7075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11) seamless aluminum tube
- c) Minimum ultimate tensile strength = 77 ksi
- d) Minimum tensile yield strength = 66 ksi
- e) Tolerance are per ASTM B210 (see details on Dwg D6005)
- f) Material certification required

CL 11/11/03 40

110

Receive & Inspect for Damage & Mat'l Certs

0.00

110

Packaging

Packaging

Memo

0.00

Ensure material certification is attached

CL 11/11/03 40

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 75631

75631

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October-27-11 11:37:01 AM

Item ID: D6005-128 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Crosstube Material
 Start Date: 27/10/2011 Start Qty: 40.00 ***40*** Cust Item ID:
 Required Date: 28/02/2013 Req'd Qty: 40.00 ***40*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC6- Inspect dimensions to drawing	0.00							
120									
QC	Memo	0.00							
Quality Control	Ensure Material certification comply to Dwg D6005								
150	Identify as per dwg & Stock Location: <u>L/C</u>	0.00							
150									
Packaging	Memo	0.00							
Packaging									
160	QC21- Final Inspection - Work Order Release	0.00							
160									
QC	Memo	0.00							
Quality Control									

DAS
16
12/11/28

See attached inspect sheet

PLW
Cathy

12/11/28
12/11/29
12-11-28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October-27-11 11:37:06 AM

Page 1

Work Order ID: 75631

75631

Parent Item: D6005-128

D6005-128

Parent Item Name: Crosstube Material

Start Date: 27/10/2011

Required Date: 28/02/2013

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP Rev:C04.06.15Added tolerance to Step 2KJ/JLM
IPP Rev:D 08-09-23 fixe typo in dwg name DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6005-128P		Purchased	No			110	Each	16.0000	1	40			
D6005-128P									**				
Crosstube material													
				<u>Location</u>				<u>Loc Qty</u>					
				MAT				16					
				71349				16					

142/11/20 (20)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN <i>CP</i>	DRAWN BY <i>CP</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>A</i>	APPROVED <i>A</i>	DRAWING NO. D6005	REV. A SHEET 1 OF 1
DATE 00.11.17		TITLE CROSSTUBE MATERIAL	SCALE 1:1
A	00.11.17	NEW ISSUE	

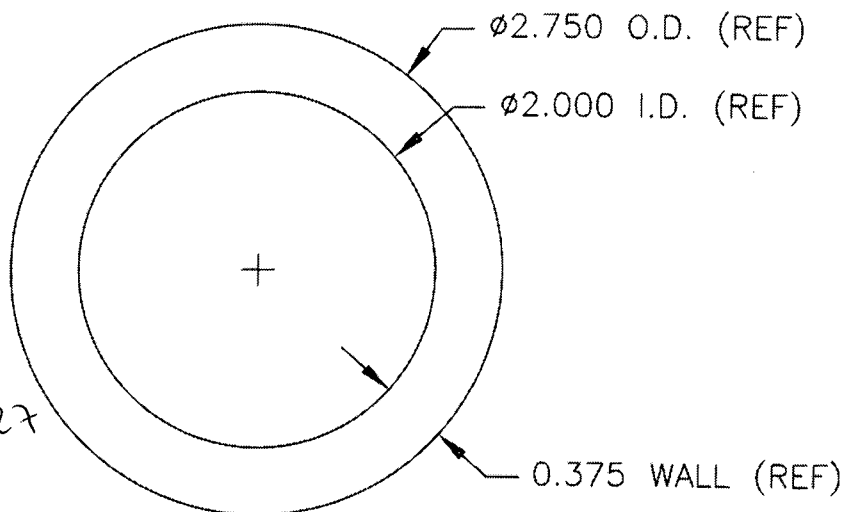
SPECIFICATION CONTROL DRAWING

RELEASED
00.11.24 *A*

THIS COPY
RETURN TO
ENGINEERING
FOR CONTROLLED COPY
IN CASE OF AMENDMENT
WITHOUT NOTICE
WORK ORDER

75631 M.L.J

11/10/27



NOTES

- 1) D6005-XXX CROSSTUBE
LENGTH

WHERE XXX IS LENGTH IN INCHES
EG. 128" LONG TUBE: D6005-128

- 2) MATERIAL: 2.750 OD x 0.375 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi
MINIMUM YIELD TENSILE STRENGTH = 66 ksi
- 3) TOLERANCES ARE PER ASTM B210 AS FOLLOWS:
O.D.: ± 0.006 MEAN (± 0.012 INCLUDING OVALITY)
WALL: ± 0.015 MEAN (± 0.038 INCLUDING ECCENTRICITY)
LENGTH: XXX $+0.125/-0.000$
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO15345**

Purchase Order Date 11/03/11

PO Print Date 12/07/11

Page Number 2 of 2

From :

VU-ALU001

MINIUMWERK UNNA AG
3033 SOUTH PARKER RD
ORA, CO 80014

Buyer Name	Chantal Lavoie
Buyer Phone	303 755 5672
Buyer Fax	303 755 5936
Buyer Account Nbr	
Requisition Nbr	
Tax Resale Nbr	10127-2607
Terms	Net 30
Currency	USD
FOB	Destination-Collect

Special Inst: AS PER DWG D6009 REV. A
B75630
MATERIAL: 7075-T6/T6511 AS PER WW-
T-700/7 OR QQ-A-225/9
OR QQ-A-200/11
SEAMLESS ALUMINUM TUBE
MINIMUM ULTIMATE TENSILE
STRENGTH = 77 KSI
MINIMUM TENSILE YIELD STRENGTH
= 66 KSI
SIZE: 3.500" X 0.625" WALL X 129" LONG

D6005-128P

Crosstube material

11/28/12
Yes

40.00
Each

\$470.0000

\$18,800.00

Special Inst: EXTRUDE AS PER DWG D6005 REV. A
B75631
MATERIAL: 7075-T6/T6511 AS PER WW-
T-700/7 OR QQ-A-225/9 OR
QQ-A-200/11 SEAMLESS TUBE
MINIMUM ULTIMATE TENSILE
STRENGTH = 77 KSI
MINIMUM TENSILE YIELD STRENGTH
= 66 KSI
SIZE: 2.750" O.D X 0.375" WALL X 128"
LONG

PO Total:

\$44,860.00

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr:

4

Change Date: 12/07/11

ALUnna ref. no.	44988/300
Customer PO.	Po. 15345
Date:	10.12.12

free from live plant pests

Dart Aerospace Po. 15345

D6005 - 128

Made in Germany Dest.: Hawkesbury Ont, Canada

14661,251 m³

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

Kunde: Dart Aerospace Ltd.

Client:

1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Zeugnisnummer: 1404/12

Cert No. / No. du certificat:

Bestellnummer:

PO 15345

Order No. / No. de commande

Auftrag:

44988/300

Our Reference/Notre Reference:

Produkt:

Product / Produit:

Rohre nahtlos gepresst

Tubes seamless extruded

Spezifikation:

Specification:

AMS - QQ - A - 200/11; Spezifikation Dart Aerospace D6005

Werkstoff:

Alloy/Alliage:

7075

Zustand:

Temper/État

T 6511

Abmessung

Size / Dimension

2,750 INCH x 2,000 INCH x 0,375 INCH x 128,000 INCH

D6005-128 2.750 x 0.375 x 128

Kennzeichnung

Marking/Marquage:

ALUnna - CERT NO. 1404/12 - 7075 - T6511 - CAST NO. 8252 - AMS - QQ - A - 200/11 - 2.750" ODX0.375" WALL - HEAT LOT NO. 401252 - ALUNNA ORDER CONF. NO. 44988/300-1 - P.O. 15345

Lieferung

Delivered Material / Matériel délivré:

pcs.

40

lbs

1466

Country of Manufacture: Germany

Products are in accordance with applicable RoHS

1. Chemische Analyse

Chemical Analysis / analyse chimique

Elemente ohne Grenzwerte:

einzel max. 0,05 %, insgesamt 0,15 %

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.			1,2		2,1	0,18	5,1						
Cast No. max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20					
8252/12	0,085	0,163	1,529	0,051	2,391	0,208	5,798	0,048	0,003	0,0283	0,0001	0,0014	0,0001

Hydrogen content: 0,11

ccm/100 g Al

Elements without indication < 0,01 %

country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Heat Lot No.
min.	77,0	66,0				
max.						
1	86,855	79,605	9,0			401252
2	85,550	78,155	10,0			
3	87,145	79,895	9,0			

RMS outside 25 - max. 18,0 µ"

**Ergebnis der
Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

EXTRUSION INSPECTION SHEET

								ULTRA SONIC MEASURMENTS				
		SIDE A	SIDE B									
TUBE #	TOTAL LENGTH	DIA two readings	DIA two readings	INSIDE DIA	wall thickness measured w/vern	Strightness at 12" in middle	Rockwell Reading	LOCATION on tube	R1	R2	R3	R4
DWG	128.00"	2.750"		2.000"	0.375"	.010"	N/A	Middle	N/A			
1	128.00"	2.754"/2.749"	2.751"/2.746"	1.988"	0.400"/0.366"	0.003"	N/A	Middle	0.378"	0.396"	0.392"	0.372"
2	128.00"	2.748"/2.747"	2.751"/2.743"	1.987"	0.382"/0.376"	0.0035"	N/A	Middle	0.375"	0.376"	0.384"	0.386"
3	128.00"	2.751"/2.747"	2.751"/2.747"	1.988"	0.387"/0.370"	0.002"	N/A	Middle	0.386"	0.379"	0.389"	0.391"
4	128.00"	2.746"/2.743"	2.749"/2.753"	1.988"	0.396"/0.376"	0.003"	N/A	Middle	0.372"	0.383"	0.391"	0.384"
5	128.00"	2.750"/2.746"	2.751"/2.749"	1.987"	0.386"/0.377"	0.002"	N/A	Middle	0.379"	0.393"	0.391"	0.378"
6	128.00"	2.750"/2.746"	2.747"/2.745"	1.989"	0.400"/0.358"	0.0035"	N/A	Middle	0.386"	0.358"	0.386"	0.406"
7	128.00"	2.747"/2.746"	2.746"/2.743"	1.988"	0.393"/0.353"	0.0025"	N/A	Middle	0.378"	0.380"	0.382"	0.386"
8	128.00"	2.746"/2.747"	2.747"/2.745"	1.985"	0.385"/0.373"	0.005"	N/A	Middle	0.399"	0.376"	0.370"	0.391"
9	128.00"	2.748"/2.746"	2.749"/2.746"	1.988"	0.382"/0.373"	0.003"	N/A	Middle	0.376"	0.392"	0.386"	0.372"
10	128.00"	2.750"/2.746"	2.746"/2.745"	1.985"	0.380"/0.369"	0.001"	N/A	Middle	0.394"	0.377"	0.372"	0.386"
11	128.00"	2.751"/2.749"	2.750"/2.749"	1.983"	0.386"/0.379"	0.0055"	N/A	Middle	0.389"	0.380"	0.381"	0.391"
12	128.00"	2.747"/2.744"	2.750"/2.748"	1.989"	0.393"/0.371"	0.003"	N/A	Middle	0.397"	0.386"	0.368"	0.382"
13	128.00"	2.747"/2.743"	2.750"/2.748"	1.984"	0.383"/0.371"	0.005"	N/A	Middle	0.375"	0.367"	0.387"	0.399"
14	128.00"	2.749"/2.744"	2.749"/2.746"	1.991"	0.393"/0.367"	0.001"	N/A	Middle	0.373"	0.377"	0.392"	0.393"
15	128.00"	2.748"/2.743"	2.750"/2.749"	1.986"	0.389"/0.373"	0.0035"	N/A	Middle	0.392"	0.378"	0.376"	0.389"
PART # D6005-128		P/O# 15345			BATCH # B75631			Notes:				

